

## **REMARKS**

Claims 1-33 remain pending in the application. Reconsideration is respectfully requested in light of the following remarks.

### **Section 102(e) Rejection:**

The Office Action rejected claims 1, 12 and 23 under 35 U.S.C. § 102(e) as being anticipated by Ford et al. (U.S. Patent 5,963,947) (hereinafter “Ford”). Please note that in the Final Action, the Examiner refers to Ford et al. (U.S. Patent 5,963,947) as “Lehman (‘947).” Applicants, however, refer to this patent as “Ford” for clarity over Lehman et al. (U.S. Patent 5,974,420). Applicants traverse the rejection of claims 1, 12 and 23 for at least the following reasons.

Regarding claim 1, contrary to the Examiner’s assertion, Ford fails to teach that information usable to access a first space is provided in an advertisement for the first space, wherein the advertisement for the first space comprises a first schema, and wherein the first schema specifies one or more messages usable to invoke functions of the first space. Ford teaches a method, called “T Spaces” for dynamically adding functionality to a server that allows new operators and JAVA-based operator handlers to be installed on a server for future use (Ford, column 7, line 66 – column 8, line 17, and column 8, lines 26-35). Ford clearly does not disclose an advertisement for the first space that provides information usable to access the first space and that comprises a schema that specifies one or more messages usable to invoke functions of the first space. In contrast, Ford teaches that T-Spaces clients include a Tuplespace class and a communications library to communicate with a T-Spaces server (Ford, column 6, lines 29-33).

In the Response to Arguments section the Examiner includes a discussion regarding two different types of schemas. However, both of the types of schemas referred to by the Examiner are schemas that define data structures (one type of schema

for a data repository that describes data tables and their relationships and another type of schema that describes the data layout of a particular database record). Neither of these types of schemas have anything to do with a message schema that specifies messages usable to invoke functions of a space, as recited in Applicants' claimed invention. Ford's Tuplespace class and communication library do not involve messages usable to invoke functions on a space that are specified in a schema comprised in an advertisement for the space. Not only does Ford fail to mention anything regarding such a message schema, Ford also clearly fails to disclose an advertisement comprising such a message schema and providing information usable to access the space.

Further regarding claim 1, contrary to the Examiner's assertion, Ford clearly fails to teach a client requesting creation of a second space *by sending to the first space one of the messages specified by the first schema*. As noted above, Ford does not disclose a schema specifying messages usable to invoke functions of a space. Instead of teaching that a client creates a new space by sending one of the messages specified by a schema, Ford teaches the use of a specific operator, NewTupleSpace(), and that such commands originate as a method invocation on T-Spaces client (Ford, column 7, lines 7-10 and lines 21-30). The examiner cites the same passage of Ford (column 9, lines 34-43) that only describes how an operator (a command) is received from an attached client and that new functionality is added in response to receiving the operator. But the cited passage fails to disclose the receiving such an operator involves the attached client sending to the space one of the messages specified in a schema provided in an advertisement that provides information usable to access the space. Thus, Ford does not teach requesting the creation of a new space through the sending a message specified in a schema, but rather that Ford describes method invocations of Tuplespace class in a T-Spaces client. Nowhere does Ford teach that a T-Spaces client, a Tuplespace class, or T-Spaces communication library would send a message specified in a schema to request creation of a new space.

Additionally, Ford does not teach wherein the second space is initially configured to permit access only to the requesting client. Instead, Ford teaches only that "[u]sers can establish security policies by setting user and group permissions on a Tuplespace basis"

(Ford, column 5, lines 10-12), that indications of a client's access control privileges may be included as method parameters (Ford, column 7, lines 31-35), and that "only designated entities should have access control privileges to add new factories and handlers" (Ford, column 8, lines 60-63). Further, the Examiner's cited passage (Ford, column 9, lines 34-46) only mentions that new functionality may be added to a Tuplespace without mentioning anything regarding the initial access control privileges regarding any newly added functionality. Thus, Ford clearly fails to teach wherein the second space is initially configured to permit access only to the requesting client.

Furthermore, Ford does not teach wherein information usable to access the second space *is provided in an advertisement for the second space*, wherein the *advertisement for the second space comprises a second schema*, and wherein the *second schema specifies one or more messages usable to invoke functions* of the second space. Similar to the discussion above regarding an advertisement for a first space, the Examiner cites column 9, lines 43-46 that does not mention anything about an advertisement for the second (created) space providing information usable to access the second space and that comprises a second schema that specifies messages usable to invoke functions of the second space. In fact, the cited passage only refers to the addition of new functionality in T-spaces, without describing anything regarding accessing the new functionality after it has been created.

For at least the reasons given above, the rejection of claim 1 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 1 apply to claims 12 and 23.

#### **Section 103(a) Rejection:**

The Office Action rejected claims 1, 5-12, 16-23 and 27-33 under 35 U.S.C. § 103(a) as being unpatentable over Lehman (U.S. Patent 5,974,420) (hereinafter "Lehman '420") in view of Ford.

Lehman describes T-Spaces in an almost identical manner as Ford, but additionally teaches the use of a Rhonda operator for use within T Spaces wherein two Rhonda operators swap their tuples when their template arguments match (Lehman, column 8, line 65 – column 9, line 3).

Regarding claim 1, contrary to the Examiner's contention, Lehman in view of Ford fails to teach accessing a first space, wherein information usable to access the first space is provided in an advertisement for the first space, wherein the advertisement for the first space comprises a first schema, and wherein the first schema specifies one or more messages usable to invoke functions of the first space. Since Lehman includes an almost identity discussion of T-Spaces as Ford, Lehman fails to overcome any of the deficiencies of Ford's teachings, as described above regarding the 102 rejection of claim 1.

Specifically, Lehman in view of Ford fails to teach wherein information usable to access the first space is provided in an advertisement for the first space, wherein the advertisement for the first space comprises a first schema, and wherein the first schema specifies one or more messages usable to invoke functions of the first space. Lehman, like Ford, teaches that T-Spaces clients include a Tuplespace class and a communications library to communicate with a T-Spaces server (Lehman, column 4, lines 55-61).

Also, Lehman clearly fails to teach a client requesting creation of a second space *by sending to the first space one of the messages specified by the first schema*, as the Examiner suggests. Lehman, like Ford, teaches the use of a specific operator, NewTupleSpace(), and that such commands originate as a method invocation on T-Spaces client (Lehman, column 5, lines 50-60). The examiner cites passages of Lehman that describe Lehman's Rhonda Operator that is used when two T Spaces clients exchange information via the T Spaces server (column 8, line 61-column 9, line 8, and column 9, lines 35-48) and that include broad statements regarding how "different computer programming languages, database systems, operating environments, and operating systems" could be substituted for those described by Lehman. Neither of the

Examiner's cited passages refers to creating a new space by sending a message specified by a schema.

Additionally, similarly to Ford, as described above regarding the 102 rejection of claim 1, Lehman does not teach wherein the second space is initially configured to permit access only to the requesting client, nor wherein information usable to access the second space is provided in an advertisement for the second space, wherein the *advertisement for the second space* comprises a second schema, and wherein the second schema specifies one or more messages usable to invoke functions of the second space. As Lehman teaches essentially the identical T Spaces system as Ford, the arguments above regarding the 102 rejection of claim 1 as applied to Ford, apply to Lehman as well.

For at least the reasons given above, the rejection of claim 1 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 1 apply to claims 12 and 23.

Applicants note that the rejection of claim 5 is improper because claim 5 depends from claim 4 and the Examiner has not rejected claim 4 as being unpatentable over Ford in view of Lehman. Similarly, the rejections of claims 16, and 27 are also improper since they depend from claims 15 and 26, respectively, neither of which was rejected by the Examiner with respect to Ford in view of Lehman.

Further regarding claim 5, Ford in view of Lehman fails to disclose a second client reading a service advertisement from the second space, wherein the service advertisement comprises information usable to execute a corresponding service. The Examiner does not cite any particular passage of Lehman, but instead states, "[t]o add an aspect of optional functionalities to [Ford] would have been obvious ... as TSpaces provides a powerful mechanism for inter-process communication and synchronization." However, Lehman's extended functionality is described as providing a mechanism for exchanging information between two or more processes, providing synchronous, anonymous rendezvous and data exchange, providing a mechanism for controlling

multiple processes, and providing barrier synchronization among a dynamically defined group of processes (Lehman, column 3, lines 21-30). Thus, while Lehman teaches that his Rhonda Operator can provide various means of inter-process communication, nowhere does Lehman describe anything regarding a second client reading a service advertisement from the second space, wherein the service advertisement comprises information usable to execute a corresponding service.

Claim 7 was rejected “on the basis that Lehman teaches the use of different computer languages.” At the Examiner’s cited reference in Lehman states, “different computer *programming* languages ... could be substituted for those described herein” (Lehman, column 9, lines 10-14). Applicants assert that Lehman is referring to programming languages that may used to create programs, such as T-Spaces clients and servers, that may utilize his system and thus has no bearing on a *schema* that is expressed in a *data representation* language and that specifies messages usable to invoke functions of a space. The Examiner has responded to Applicants’ previous arguments by pointing out the differences between a Data Manipulation Language and a Data Definition Language. Applicants submit however that the Examiner has misunderstood Applicants’ argument. The issue is not whether a data representation language may be both static stored or dynamically created; instead, the issue is whether or not Lehman’s general statement regarding *programming* languages suggests the use of a *data representation* language for a schema specifying messages usable to invoke functions of a space. Clearly, it does not.

Therefore, for at least the reasons given above, the rejection of claim 7 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 7 apply to claims 18 and 29.

Regarding claim 8, the Examiner states that the motivation to combine XML with T-Spaces is noted within Lehman, “wherein the use of different computer languages is recognized as possible” and the Examiner further states that “as XML was in existence at the time of invention ... the use of the same as a programming language would have been

obvious.” As regarding claim 7, discussed above, the Examiner’s cited reference states that “different computer *programming* languages ... could be substituted for those described” (Lehman, column 9, lines 10-14). Lehman is referring to *programming* languages that may used to create programs that may utilize his invention and thus has no bearing on data representation languages, such as XML, which are used for very different purposes than computer programming languages. Furthermore, the Examiner’s discussion regarding the traditional uses of XML is irrelevant. In the prior art, XML schema have been used to describe data structures, not to specify messages usable to invoke functions of a space.

Further, neither Lehman nor Ford teaches anything regarding the use of a data representation language. Therefore, the combination of Lehman in view of Ford fails to teach or suggest any desire or benefit to using a data representation language, as the Examiner contends. Furthermore, the mere fact that XML was in existence at the time of Applicants’ invention does render its use obvious as implied by the Examiner. As the Federal Circuit stated in *In re Kotzab*, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000):

Most if not all inventions arise from a combination of old elements. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.

Therefore, for at least the reasons given above, the rejection of claim 8 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 8 apply to claims 19 and 30.

Regarding claims 9-11, 20-22, and 31-33 the Examiner fails to provide any specific reasons for his rejection of these claims. Applicants can find no reference in either Lehman or Ford, either separately or in combination that teaches the limitations of these claims and therefore respectfully request removal of these rejections. The Examiner only discusses combining Lehman with the ability to add functionality to a

TSpaces server from Ford and also with XML. Applicants fail to see the relevance of these combinations to the specific limitations of claims 9-11, 20-22, and 31-33.

For example, regarding claim 9, Ford in view of Lehman clearly fails to teach reading a service advertisement stored in the first space, wherein the service advertisement comprises information which is usable to access and execute a second service; using the information in the service advertisement to execute the second service; generating a set of results of the second service in response to the executing the second service; and publishing the set of results of the second service in the second space; wherein the requesting creation of the second space comprises requesting creation of the second space for storage of the set of results of the service, as the Examiner contends. Nowhere does Ford or Lehman teach this functionality.

Claims 2-4, 13-15 and 24-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lehman '420 in view of Oliver (U.S. Publication 2002/0133412). Applicants assume that the Examiner intended to reject claims 2-4, 13-15 and 24-26 under 35 U.S.C. § 103(a) as being unpatentable over Lehman *in view Ford*, in further view of Oliver.

Regarding claim 3, the Examiner presumably contends that Lehman in view of Ford in further view of Oliver teaches a client sending the root authentication token to a second client; the second client accessing the second space by sending to the second space one of the messages specified by the second schema. Applicants, however, disagree with the Examiner's contention. Lehman, Ford and Oliver clearly fail to teach sending the root authentication token to a second client and further fail to teach the second client accessing the second space by sending to the second space one of the messages specified by the second schema.

The Examiner admits that Lehman does not teach the use of root authentication tokens. Ford also fails to teach the use of root authentication tokens. Oliver teaches a system for managing client accounts and controlling access to resources (Oliver, abstract)



that uses authentication tokens; however, Oliver fails to teach one client sending an authentication token to a second client. In contrast, Oliver teaches that an authentication token contains information that identifies the associated user (Oliver, paragraph 126). Hence, it would not make sense for a client to send such an authentication token to a second client, as the authentication token would not then properly identify the second client.

The Examiner has responded in the Response to Arguments section that Ford and Lehman teach the use of keys in the form of IDs and that when combined with the authentication tokens of Oliver results in a system wherein the tokens of Oliver are used to transfer the keys of Ford and Lehman. However, the only keys taught in either Ford or Lehman refer to request identifiers used as keys to route responses from a T-Spaces server back to the originating T-Client application thread (Lehman, column 5, lines 13-23 and Ford, column 6, lines 51-52). Additionally, the only other identifiers taught either by Ford or Lehman are T-Space client identifiers (Ford, column 7, lines 31-37 and Lehman, column 5, lines 60-65). Neither the request identifiers or T-Client identifiers can be transferred from one client to another as they are meaningless with respect to the other client and would only confuse and corrupt the T-Spaces server system or cause responses from the server to be misrouted. Thus, the Examiner's proposed combination of Lehman, Ford, and Oliver would not result in a system that comprises the requesting client sending the root authentication token to a second client. Instead, such a combination would only result in a T Spaces system that used the authentication tokens of Oliver to indicate the access control privileges of Ford and Lehman.

Further, as shown above, neither Lehman nor Ford, separately or in combination, teach the use of a schema specifying messages usable to invoke functions of a space, nor do they teach accessing a space by sending messages specified in such a schema. Oliver teaches the use of authentication tokens, but also fails to teach anything regarding a schema specifying messages usable to invoke functions of a space. Thus, the combination of Lehman, Ford and Oliver does not teach a client sending the

authentication token to a second client and the second client accessing the second space by sending to the second space one of the messages specified by the second schema.

Therefore, for at least the reasons given above, the rejection of claim 3 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 3 apply to claims 14 and 25.

Regarding claim 4, Lehman, Ford and Oliver, individually and in any combination, do not teach a client modifying a security policy of the second space, whereby the second space is configured to permit access to a second client, as the Examiner implies. As the Examiner has failed to cite any particular portions of Lehman, Ford or Oliver to support the broad statement that claim 4 is rejected in light of the teachings and motivations of claims 1 and 2, as they “refer to the use and manipulation of security measures including, but not limited to, authentication means” (Office Action, page 7, lines 9-12). However, any authentication means taught by Lehman, Ford and Oliver fails to include a requesting client modifying a security policy of a space, whereby the second space is configured to permit access to a second client. Ford and Lehman only refer to the fact that “users can establish security policies by setting user and group permissions on a Tuplespace basis” (Ford, column 5, lines 10-12). Oliver includes a system for managing client accounts and controlling access to resources over data networks wherein a client registered with one service provider is allowed to access the resources of other service providers of the system (Oliver, paragraph 17). Nowhere, however, does Oliver describe a requesting client modifying a security policy for a space, whereby the second space is configured to permit access to a second client.

Thus, the rejection of claim 4 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 4 apply to claims 15 and 26.

Claims 1-33 are further rejected as being unpatentable over Lehman '420 and '947, and in further view of "IBM Systems Journal, Vol. 37, No. 3" by Wyckoff, McLaughry, Lehman and Ford, 1998 (hereinafter "Wyckoff")

Regarding claim 1, Applicants' arguments given above regarding Lehman in view of Ford regarding claim 1 apply here as well. In addition, Wyckoff presents an introduction to both Tuplespaces and TSpaces that is largely identical to both Lehman and Ford. Wyckoff fails to teach anything that overcomes the deficiencies of Lehman and Ford, as described herein above. The Examiner relies upon Wyckoff to teach access controls that include security policies. However, Wyckoff fails to disclose creating the second space in response to the requesting client requesting creation of the second space, wherein the second space is initially configured to permit access only to the requesting client. The Examiner cites a passage of Wyckoff that only refers to users being able to establish security policies by setting user and group permissions on a Tuplespace basis (Wyckoff, page 7, access controls). However, the fact that user can set permissions when establishing security policies does not suggest that when created a second space is initially configured to permit access only to the requesting client.

Thus, for at least the reasons given above, the rejection of claim 1 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 1 apply to claims 12 and 23.

Regarding claim 2, contrary to the Examiner's assertion, Lehman in view of Ford in further view of Wyckoff does not teach creating a root authentication token for the second space; initializing an authentication service associated with the second space, wherein the second space is configured to permit access only to a client holding the root authentication token, and sending the root authentication token to the requesting client. The Examiner has admitted that Lehman and Ford fail to teach the user of root authentication tokens (Office Action, page 7, lines 4-5). Wyckoff also fails to mention anything regarding authentication tokens. Instead Wyckoff only refers to a general

ability for user and group-based access control without teaching anything about authentication tokens.

Thus, for at least the reasons given above, the rejection of claim 2 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 2 apply to claims 13 and 24.

Regarding claim 3, Lehman in view of Ford in further view of Wyckoff fails to teach the requesting client sending the root authentication token to the second client and the second client access the second space by sending to the second space one of the messages specified by the second schema. Ford and Lehman, both singly and in combination, fail to disclose sending an authentication token to a second client, as shown above, and Wyckoff does not teach anything at all regarding authentication token and clearly does not disclose one client sending an authentication token to a second client. A client sending an authentication token to another client does not make sense in the TSpaces system, as outlined above. Furthermore, Wyckoff also fails to disclose the second client access the second space by sending to the second space one of the messages specified by the second schema. As with Ford and Lehman, Wyckoff does not mention anything about a schema specifying messages usable to invoke functions of a space, and also fails to mention a second client sending such a message to a second space.

Thus, for at least the reasons given above, the rejection of claim 3 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 3 apply to claims 14 and 25.

Regarding claim 4, Lehman, Ford and Wyckoff, individually and in any combination, do not teach a client modifying a security policy of the second space, whereby the second space is configured to permit access to a second client, as the Examiner implies. The Examiner has failed to cite any particular portion in Wyckoff, Lehman, or Ford, but only states that Wyckoff teaches access controls which include security policies. However, any access controls taught by Lehman, Ford and Wyckoff

fail to include a requesting client modifying a security policy of a space, whereby the second space is configured to permit access to a second client. The T Spaces system only allows users to establish security policies by setting user and group permissions on a Tuplespace basis (e.g. Ford, column 5, lines 10-12). Wyckoff does not include any additional access control features that involve a requesting client modifying a security policy for a space, whereby the second space is configured to permit access to a second client.

Thus, the rejection of claim 4 is not supported by the prior art and its removal is respectfully requested. Similar remarks as discussed above in regard to claim 4 apply to claims 15, and 26.

Applicants also assert that the rejections of numerous other ones of the dependent claims are further unsupported by the cited art. However, since the rejections of each of the independent claims have been shown to be improper, a further discussion of the rejections of the dependent claims is not necessary at this time.

## CONCLUSION

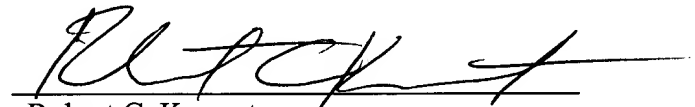
Applicants submit the application is in condition for allowance, and notice to that effect is respectfully requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-67100/RCK.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Notice of Change of Address
- ☐ Fee Authorization Form authorizing a deposit account debit in the amount of \$  
for fees (        ).

Respectfully submitted,



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